

SIERRA CLUB BULLETIN.

VOL. I.

SAN FRANCISCO, JUNE, 1893.

NO. 2.

LETTERS FROM OUR HONORARY MEMBERS.

At the third general meeting the SIERRA CLUB elected as Honorary Members a number of gentlemen conspicuous for their achievements as mountain-climbers or explorers, or for the zeal that they had shown in attempts to preserve our forests from destruction. A number of replies have been received accepting membership in the Club, and their nature is such that the Secretary feels certain every member of the Club will be interested in reading them. The first is from the man to whom we owe the magnificent Sierra reservation.

DEPARTMENT OF THE INTERIOR, }
WASHINGTON, January 4, 1893. }

My Dear Sir:—Your favor of the 27th ultimo has been received, announcing that for reasons by you stated, I have been elected at a general meeting to an honorary membership in your honorable association. It gives me great pleasure to accept this distinction, and to assure you of my continued interest in the purposes of your organization. While the development of new territory for the establishment thereon of farms and cities and of public improvements is worthy of the labor of any official, it does not transcend, in my opinion, the importance of preserving those lands we have in such form that the laws of nature may ever continue to support the efforts of man to make them productive.

From the hills cometh our strength, and I am glad that that stronghold is being preserved by the efforts of the SIERRA CLUB.

Truly yours,

JOHN W. NOBLE.

Mr. WM. D. ARMES,

Secretary of the Sierra Club,
San Francisco, Cal.

The next letter is from the famous mountaineer, Edward Whymper, whose achievements in the Alps and more recently in the Andes, have given him a world-wide reputation.

29 LUDGATE HILL,
LONDON, January 24th, 1893. }

Dear Sir: I am gratified to learn from yours of December 27th of the honour that has been conferred upon me by the SIERRA CLUB.

In my works upon the Alps and the Andes, I have dwelt principally upon topics which seem to me to have interest for lovers of mountains; and, although I have hitherto been unable to travel in the United States, I am with you in spirit.

The objects you have at heart, as set forth in your Articles of Incorporation, command our hearty sympathy, and you have my best wishes for the prosperity of your Club.

I am, dear sir,

W. D. ARMES, Esq.,
The Sierra Club.

Very obediently yours,
EDWARD WHYMPER.

The Arctic explorer, General A. W. Greely, writes as follows:—

OFFICE OF THE CHIEF SIGNAL OFFICER, }
WASHINGTON, D. C., January 7, 1893. }

Dear Sir: I have pleasure in acknowledging your letter of the 27th ultimo informing me that the SIERRA CLUB, at its last general meeting, elected me to honorary membership. Please inform the President and Directors of my acceptance of the honor thus conferred on me.

Every lover of nature must be gratified at the definite action taken in the organization of the SIERRA CLUB, which certainly must do much towards preserving for future generations the magnificent heritage of mountain regions belonging to the Pacific Coast.

Yours truly,

Mr. WM. D. ARMES,

A. W. GREELY.

Secretary of the Sierra Club,
Academy of Sciences Building,
San Francisco, Cal.

As Chief of the Division of Forestry, Mr. Fernow showed himself energetic and able, and it is quite in keeping that he should at once point out how the Club could do effective, practical work.

UNITED STATES DEPARTMENT OF AGRICULTURE,
DIVISION OF FORESTRY,
WASHINGTON, D. C., January 5, 1893. }

WM. D. ARMES, Secretary,
The Sierra Club,
San Francisco, Cal.

Dear Sir: Your kind note informing me of my election to honorary membership in the SIERRA CLUB is at hand and I wish to acknowledge the honor with due appreciation of its value.

I hope that you will consider me as a good working member whenever any work within my capacity presents itself. I believe that at the present time the Club could render most useful assistance to the general forestry movement by pushing the making of reservations under the law of March 3, 1891, and the legislation which is embodied in the Senate Bill 3235, introduced by Mr. Paddock of Nebraska, which provides for a rational administration of the reserves.

Yours very truly,
B. E. FERNOW,
Chief.

Professor J. D. Whitney, of Harvard University, whose work as State Geologist was of such great value to the State, has by no means lost interest in things Californian. He writes as follows:

CAMBRIDGE, MASS., January 28, 1893.

Dear Sir: Thanks for the information in regard to my election as a member of the SIERRA CLUB. Anything indicating a desire on the part of the Californians to keep intact the grand scenery of the Sierra Nevada is to me a pleasure; but oh! how sad the thought that so much valuable work in delineating the topographical features, done by my most skillful and enthusiastic assistants, Hoffmann, Wachtenreuder, D'Henreuse, and others, should have been lost by the negligence of the Legislature to provide for the completion of a task on which so many thousands had been extended! A good deal of the geological, botanical, and zoolog-

ical work done by the Survey has been saved, by an expenditure (chiefly out of my own pocket), of at least \$40,000 since 1874; but to complete the map of the Sierra Nevadas was beyond my means, and now all is lost. Enclosing a statement of what has been done since the stoppage of the survey, I remain,

Very truly yours,

J. D. WHITNEY.

The one man who has been most outspoken concerning the management of the Yosemite is Mr. R. U. Johnson, Associate Editor of the Century Magazine. The SIERRA CLUB fully understood Mr. Johnson's spirit, and by unanimous vote elected him an Honorary Member of the Club. In the course of a letter on other topics Mr. Johnson thus expresses his appreciation:

Will you kindly express my thanks to the management of the SIERRA CLUB for the honor they do me in electing me to membership in the Club? I accept this, with my Trusteeship of the Armstrong Park, not only as an honor in itself, but as an offset to the abuse which was visited upon me in California because of my very temperate, not to say disinterested, comment on the neglect of the Yosemite.

Yours sincerely,

R. U. JOHNSON.

One of the pioneer mountain explorers of the State was Clarence King, whose book, "Mountaineering in the Sierra Nevadas," first made known to the world in general the beauties of our mountains. His words are a great comfort to those of us who cannot accompany our President on his projected trip to Switzerland and Norway.

THE UNION LEAGUE CLUB,
NEW YORK, January 30, 1893. }

WM. D. ARMES, Esq.,

Secretary of the Sierra Club.

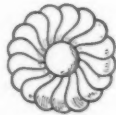
Dear Sir: With pleasure and pride I accept the honorary membership in your Club announced in your letter of December 27th.

After a pretty wide experience in foreign mountaineering, I find

that, as years pass, the Sierra memories are the richest of all in true charm. Nowhere else have I seen the whole conditions of mountain life at once so full of interest and so charged with fascination.

Faithfully yours,

CLARENCE KING. .



MAPS · OF · THE · SIERRAS.

The SIERRA CLUB has recently distributed to its members two maps of portions of the Sierras. These maps were compiled for the Club by Mr. J. N. Le Conte, of the University of California, who writes thus concerning them:—

The western and central portions of the Yosemite Sheet were taken from atlas sheets, No. 56 (B & D) of the "Surveys west of the rooth Meridian," under Lieut. Wheeler. The northwest corner from the "Jackson Sheet" of the U. S. Geological Survey. The northeast portion from a map of the "Hydrographic Basin of Lake Mono," Plate XVII of the Eighth Annual Report of the U. S. Geological Survey. The southeast corner (east of the Main Crest) from the map of Central California by the State Geological Survey. The strip along the southern boundary was taken from the official County map of Fresno County (1886). The unsurveyed region about the upper forks of the San Joaquin River from notes furnished by Mr. Theodore S. Solomons, who visited the region in 1892.

The King's River Sheet was compiled from the following sources:—

The official County maps of Fresno County (1886 and 1891). The official County maps of Tulare County (1884). The township plats concerning most of the western slope of the mountains. The official County map of Inyo County. Many of the trails and points of interest in the unsurveyed portions were obtained from notes taken by the writer in the summer of 1890.

J. N. LE CONTE.

CRATER LAKE, OREGON,
AND
THE ORIGIN OF WIZARD ISLAND.

BY MARK BRICKELL KERR.

About thirty years ago a party of prospectors, hungering after gold, explored the Rogue River in Oregon, and lost their way in the deep and intricate cañons heading up against the crest of the Cascade Range. After days of travel over twisted volcanic tufa, through thick forests of pine, crossing rough and rocky water courses, they reached a small plateau at the extreme summit of the range, and looked down upon a deep crater within which nestled a lake blue as azure, the heart of the former mountain.

These rough gold-hunters, influenced by the mysterious awe and beauty of the scene, and no doubt observing the dark, floating pine logs, lingered only a few moments, and in their after-talk around the camp-fire peopled the lake with all manner of strange forms and antedeluvian shapes; even to this day much mystery and doubt clings to this locality and every few months some hitherto unknown and interesting fact is read concerning it. The report of the exploration of this vicinity by the U. S. Geological Survey in 1886 has only been published in the most general way. This forever laid at rest the conflicting stories about the unfathomable depth of the lake and the theory of its origin. To this expedition the writer was attached, in charge of the topographic work, under orders from Maj. J. W. Powell, Director, and a detailed survey was made of this, one of the most remarkable features of the Cascade Range. (See illustration.)¹

The work and life of a topographic engineer is not by any means an easy one. He is the pioneer. The geologist or specialist, coming immediately after him, depend upon topographic meanders, triangulation and sketch work for routes of travel in their investigations. The topographic maps are also the groundwork for more elaborate surveys for canals, for railroads, and for limiting the boundaries of mining claims and private land grants. The work is carried on with constant danger to life and limb. The experiences of the topographic engineer in rain and storm, 'midst snow-drifts and avalanches, are sometimes thrilling, but, with it all, high spirits laugh at danger and exposure, and after a few months of rest and civilization he is found ready to begin and do over again deeds that seem almost impossible.

Much attention of late has been drawn to this locality, principally through the efforts of the Oregon Alpine Club. A bill is now pending before Congress to set aside this lake and vicinity for a National Park. Crater Lake should be reserved from settlement, as the U. S. Government, with judgment and wisdom, has done in the case of the Yosemite, the Yellowstone and the Colorado Parks. After this is accomplished, people of enterprise will take a hand and enable the tourist to behold its wonderful and quiet beauty without experiencing the great difficulties which beset our path.

We left the railroad at Ashland, Oregon, the 25th of July, equipped for the journey proper. Our road went down Bear Creek to Rogue River, and thence for two days up the river. Then we began to climb the steep mountain slopes, and the scene greatly changed. The brush and chapparal was left behind, and the journey afterward made through forests of lofty pines. Numerous springs of the clearest water gushed out, and after a course of a few hundred yards increased so much in volume that it required some care to pick a crossing. The huge pines grew so

closely together and the fallen ones were piled across each other in such confusion, that progress was at times almost impossible. Soon we passed into a region where large fires in some by-gone time had scarred the whole face of the country, and as we traveled through this somber forest the huge charred and blackened stumps were the only mementos of the beautiful growth that had been.

Thence we passed out into a prairie and continuously ascended the bank of a stream which had cut a deep channel through the softer pumice, leaving behind piles of volcanic tufa. (See illustration.)² For many hours we picked our way through this wild country, expecting every moment to behold the lake, and grew weary in anticipation. At last we reached a small plateau, and the dark blue water in the deep caldron far below burst upon our view. For a long time we stood and gazed in silent awe at the lake, environed by its mighty rocky band. Descending a short distance, we pitched our tents upon the banks of a stream trickling over the pumice, clear and cool, from its source in a neighboring bank of snow. From the edge of the crater near by we had an unimpeded view of the lake and the island of Llaó Nous, around which centers a beautiful Indian legend, in which Wimawita,¹ a Shasta brave, and his companions figure. The story, gleaned from a Klamath Indian, was as follows:

"Wimawita was the pride of his family and tribe. He could kill the grizzly bear and his prowess in the fight was renowned even among those fierce braves who controlled the entrance to the Lake of the Big Medicine, where the black obsidian arrow-heads are found. But the chase no longer had pleasure for him and he wandered far up the slopes of Shasta, where the elk and deer abound, and they passed slowly by him down into the heavy growth of murmuring

1. Grizzly bear.

pinces, as if knowing that his mission was of peace. Above was the line of perpetual snow, where the tamarack was striving hard for existence in the barren rock. From this great height Wimawita gazed upon the lodges in the prairie amongst the huge trees far below and then, suddenly descending, disappeared into the forest, advancing towards the east, where springs the great gushing sawul,¹ the sources of the Wini-mim.²

There, in a little hut, dwelt old Winnishuya.³ "Tell me, O mother," he said, "what can I do to regain the love of Tculucul?"⁴ she laughs at me. and the dog Tsileu⁵ wanders with her over the snow-clad mountain." "'t is well," answered the old woman; "Tculucul still loves you, but since your brave deeds among the Klamaths your thoughts are far away and you long for further perils to chant your great exploits in the councils of the brave. Tculucul has noticed your neglect and distaste for the exploits in which you formerly took pleasure. Why, O Wimawita, do you not seek for greater glory? Know you not of the great lake far away and deep down in the mountain-top? The way is long and difficult and but few reach its rocky slopes. If you have the strength and courage to climb down and bathe in its crystal waters, you will acquire great and marvelous wisdom, Tculucul will look upon you with favor, and none will equal you among your own people. The Llaos (children of the Great Spirit) guard the lake, and far in the past one of our own tribe reached it, but not propitiating the spirits, they killed him and his body was sunk into the depths of the blue water."

As she spoke the old woman's strength increased. Wimawita, listening, caught her energy and said: "'t is well, my mother; — to-morrow, while all sleep, will I start upon this journey far away over the fields of lava, to the

1. Large spring.
4. The Lark.

2. McCloud River.
5. Red Flicker.

3. Forethought.

river where the Klamaths dwell. Then will I find the way to the wondrous lake and bathe in the deep water." While speaking, he noted not the parting of the brush, where Tculucul was concealed and in her fright almost betrayed her presence. Nor was Tsileu visible behind the granite rocks near by, eagerly watching and hearing all that happened.

At the dawn of the following day, when even the dogs were still around the camp, Wimawita stole quietly away. Close behind, clad in the raiment of a young brave, followed Tculucul and after a short interval, gliding stealthily in the tracks of the others, came Tsileu. Thus they marched for several long and weary days over the prairies of Shasta and the dreary lava fields of Modoc, until Wimawita reached the great river of the Klamaths. Then Tculucul came forth and accosting him said: "Whither goest thou, Wimawita, and why are you alone in this desolate place?" "I seek the great lake in the top of the mountain to bathe in its limpid waters," he answered. "There would I also go and share your perils." "'t is well," answered Wimawita, "and I will reward your faith in me." Tsileu, inwardly raging, cast a look of hate upon them and sped northward through the land of the Klamaths.

The next day Wimawita and Tculucul journeyed up the river. They came to a large lake and after some distance this gradually narrowed to a small but rapid stream. After a course of some distance through a deep ravine the water again spread out into a lake and far north could be seen the prairies of the Klamaths. Towards the east was a succession of rolling hills with scanty vegetation and clear cut in the rarefied atmosphere. On the west high mountains rose up precipitously, while every now and then a snow-clad peak towered up against the sky, far above its fellows. "'t is there," said Wimawita, "where we must seek for the deep mountain lake." At last, after many

weary days, they reached the lake and made camp upon the edge of the precipice. All night Wimawita chanted his song and early, when the sun was just lighting up the circular wall on the opposite side of the lake, fully seven miles away, he clambered down the steep and rocky walls and plunged into the deep, clear water. His spirit seemed to soar from him; but it required all his strength to climb back to the rim of the crater. Again the next day he attempted the same difficult feat, and on returning said: "Once more only, Tculucul, will I have to bathe in the crystal water. Then wisdom and strength will be mine, our tribe will be the grandest in the land, and you the greatest squaw among us. Thus will your faith and help to me be rewarded."

On the third morning he started. Just as he reached the last descent, near the water's edge, he beheld Tsileu. "Dog of Wimawita, we will here find who is the greater man. Defend yourself!" he cried. They swayed to and fro on the edge of the cliff, advancing and retreating, where a false step would cause death. Tculucul from the cliff above, powerless to aid, beheld the mighty encounter. Suddenly Wimawita slipped on the mossy rock and Tsileu, exerting all his strength, raised and hurled him far out into the lake. Then the Llaos rose and bearing fiercely down upon Tsileu tore his body to pieces and cast them upon the water. Before the ripples had subsided where the lark disappeared, the waves parted and the lava burst out with a mighty noise. The Island of Llaos Nous rose up as a gasp of the dying crater, and here, 't is said, dwells the spirit of Wimawita, the brave, and Tculucul, the lark."

Near the scene of this romantic story we made our base camp, arriving about the last of July.

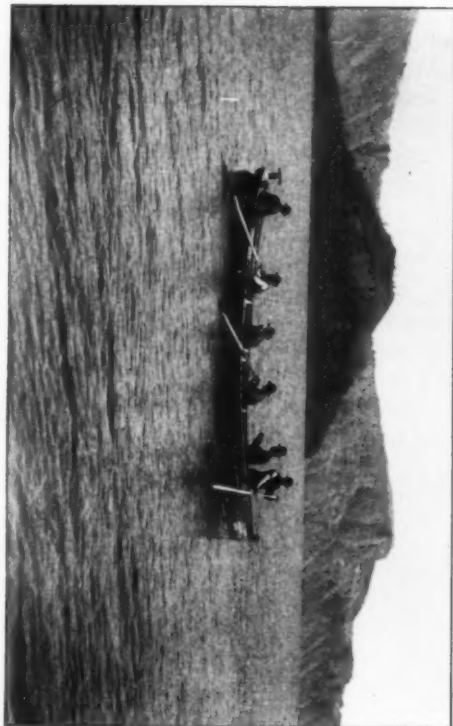
The peculiar beauty of the lake and the superstitious surroundings cast much of glamour about us and we prosecuted

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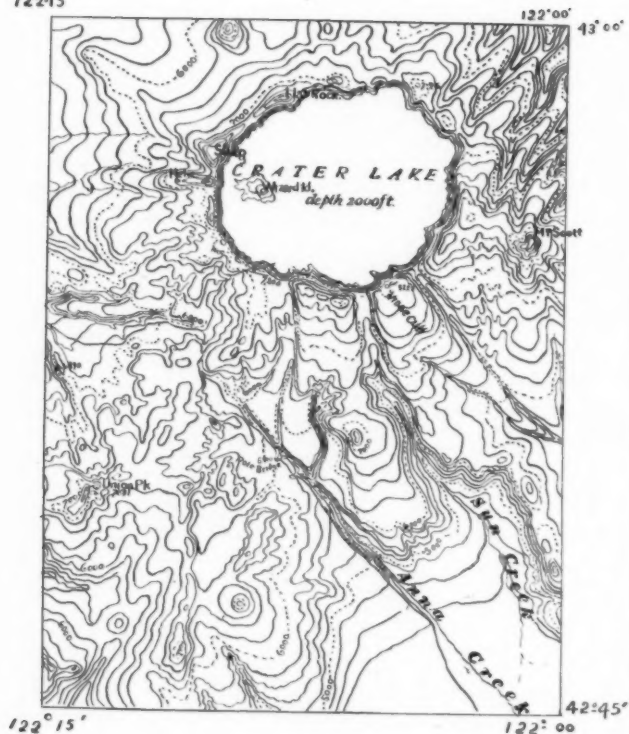
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our reconnoissance with a quiet interest and a determined purpose which the occasion seemed to warrant.

In the immense proportions of the crater a voice at the highest pitch or the report of a rifle could be heard only a short distance away, and in signaling between stations we depended upon large cotton flags and heliotropes.

Boats for sounding and general reconnoissance had been built and shipped to Medford, Oregon, a point on the California and Oregon Railroad about one hundred miles from the lake. Considerable care was taken to prepare the framework needed for protecting the boats in the wear and tear of the journey over the rough road along the banks of the Rogue River. In the last part of the journey and after we left the Rogue River behind us, we were forced to cut a new road to the edge of the crater and just overlooking the lake where base camp was made. The elevation of this camp was 7300 feet above sea level and was determined by Cistern barometer, referred to Ashland and to Fort Klamath, Oregon, where synchronous observations were taken during the whole season. The vertical distance from the camp to the water's surface was 850 feet, the least in the whole circumference. Down this almost perpendicular slope the boats were lowered. (See illustration.)³

The lake is almost circular, the diameter averaging six miles. (See Map.)⁴ It has an elevation of 6439 feet above the sea and a maximum depth of 2004 feet. The profile of the jagged rim is very irregular, averaging 850 feet above the water at our base camp and 2500 feet above the lake surface at Dutton Cliff, on the southeast rim, and at Llao Rock, on the northwestern rim.

The interior walls of the crater are sheer precipices and are all that remain of the former immense peak, which at one period, in past geological time, rivaled Shasta, Hood, and Tacoma. Gases, generated and pent up within the

cone, suddenly burst forth with incalculable force. The vertex was blown off and an immense depression formed. Within this now lies Crater Lake, the deepest fresh water known on the North American Continent. The outside slopes still show the old water-courses ending suddenly at the rim of the crater, and these cañons are very deep and difficult to cross. Near the western end of the lake is an island of some extent, the lower slopes of which are covered with scrubby pines. The Indians call this Llaou Noss or Wizard Island. It is about $2\frac{1}{2}$ square miles in extent and rises 650 feet above the water. Many myths and legends concerning its origin are recorded.

The configuration of the bottom of the lake is comparatively regular, but there are two submerged cones found by sounding, one of which comes to within 400 feet of the surface of the water.

North of Crater Lake, along the summit of the Cascades, the country is rough in the extreme and filled with small, but beautiful mountain lakes, very difficult of approach.

Crater Lake has no apparent outlet and the supply of snow and water collected about equal evaporation.

There may be sources from springs within the crater, but none are evident; on many of the outside slopes huge springs gush out, supplied from this immense basin. There are no fish living in the lake and but few deer ever plunge down the steep walls to the water's edge.

In the vicinity, however, and north towards Diamond Lake and Umpqua River, the hunting and fishing are excellent and many beautiful camps can be found.

No more fitting tribute to finish a description of this region can be found than that of Mr. W. G. Steel, who writes as follows:

"Crater Lake is one of the grandest points of interest on earth. Here all the ingenuity of Nature seems to have

been exerted to the fullest capacity to build one grand, awe-inspiring temple, within which to live and gaze upon the surrounding world and say, The universe is my kingdom and this is my throne."

San Francisco, Cal., May 1, 1892.

* Mountains of Oregon.



THROUGH DEATH VALLEY.

A BRIEF ACCOUNT OF A TRIP FROM DAGGETT TO FURNACE CREEK.

BY FRED W. KOCH.

While Californians are boasting about their glorious climate, their ever-blooming gardens, their charming valleys and magnificent heights, they seem to forget that besides their incomparable climate and their loftiest of North American mountains, within the borders of their State may also be found a locality which, while the lowest on the American Continent, is the hottest in the world; a locality reaching many feet below the level of the sea, in which the heat is so intense that during the summer few can bear it. During the spring and winter, however, the climate is far from being excessively hot. On this account most of the visits have been made to the locality at this time.

It was my good fortune to accompany the body of naturalists who, in the winter and spring of 1891, made a biological survey of this interesting locality.

While the position held by me did not admit of much time spent in observation, I felt amply repaid for the troubles and dangers of the trip. This brief account of part of the journey is written in the hope that it may be of some use in directing others to the place who can present the result of their observations better than I.

For the benefit of those unaccustomed to this mode of travel it might be well briefly to state a few of the requirements for a trip such as was taken by us and which, in fact, may be considered as applicable to any journey through an American desert.

If the start is to be made from Daggett, Cal., as it was in our case, without doubt wagons are preferable to pack animals, as there is a fairly good road the entire distance. There are rocky cañons to pass through, so the strength of the conveyance is no mean factor of the considerations of comfortable and safe travel, while the long stretches of the heaviest sand imaginable remind us that the question of lightness should not be overlooked, and stimulate us to find wagons with tires wider than are usually used.

The animals, whether horses or mules, should be perfectly sound and in good condition, for the breaking down of one of them when far from water may prove a very serious accident. A knowledge of horse-shoeing will be valuable, as a lame horse is sometimes worse than a dead one.

The load should be as compact as possible, with a very plentiful supply of food for both man and beast. It might be well to remark here that in selecting animals those able to eat the coarse bunch and salt grasses of the desert are far preferable to fastidious stable-fed animals unused to roughing it. The observance of this may save considerable hay when wild feed is to be found.

Receptacles for at least two full days' rations of water all around should be provided. Although casks are generally used, I found during my last trip across the Colorado Desert that the ordinary five-gallon oil cans are preferable. With them there is scarcely any waste space; they are easily handled, and, best of all, they will not dry out and fall to pieces when empty. Finally, if one contemplates the trip and expects to start in March or April, as we did, let me advise him not to labor under the impression that on account of the intense heat the scantier the stock of blankets and clothing the better. Go prepared to encounter cold nights.

We started from Daggett about 9 o'clock on the morning of April 4th. Some of us walked as far as Evans' Wells,

our first stopping place. Just north of Daggett we crossed the Mojave River, now but a few inches deep, but which a short time before was a roaring torrent which had washed away the bridge, so that now but a few posts supporting a single-board foot-bridge remained. A short distance from the river is the mill of the Waterloo Mining Company, where thousands of tons of low-grade ore are being reduced to bullion.

At Evans' Wells we filled our casks and canteens with water, the last we should see for at least two days, and, turning sharply to the left, soon left far behind us in the dim haze of the desert the last inhabited house for a hundred and fifty miles to come.

Having been led to believe that the desert was, as the geography writers put it, a hot, burning waste, I was much surprised at its general green appearance. This is due almost entirely to the presence of the creosote bush (*Larrea mexicana*), which is abundant in nearly all parts of the desert above an altitude of about five hundred feet. The road was heavy with deep sand, and we could make but slow progress; perhaps less slow than it seemed on account of the dearth of interesting objects. Hundreds of pale-colored little lizards and horned toads scurried away on our approach, but besides these little animal life was to be seen. The desert sparrow (*Amphispiza belli nevadensis*) and the black-throated sparrow (*Amphispiza belineata*) were the most prominent representatives of animated life.

About noon we again turned to the left, passing a high, reddish-colored hill, devoid of vegetation, and soon began a laborious ascent, which we hoped to accomplish before night. As the road winds upward the long slope terminates in a narrow cañon. Here, at an altitude of three thousand feet, we first met with the tree yucca (*Yucca brevifolia*), which becomes more plentiful as one ascends.

Finally, after a hard pull, we reached the summit just as

the sun went down, and by the dim twilight we saw that we were surrounded by a large grove of yuccas. A much-relished supper and an hour around a camp-fire of dead yucca logs telling yarns put us in good condition for our first night in the desert.

The next morning dawned bright and clear. As I threw off my blankets my first impression was that I was in a perfect paradise. All about us were the beautiful yuccas, stretching their spiny arms in all directions, while beneath them was a perfect carpet of gorgeously colored flowers, some like white satin, others a beautiful blue, while from every bit of shaded ground, like golden daisies, nodded a beautiful little yellow flower (*Anisconia acaule*), filling in the background of this carpet and throwing the other colors into stronger relief. The sound of birds was heard on all sides, conspicuous among them being the beautiful song of Le Conte's thrasher, which sounded like a solo with all the chirpings and warblings of other species as a second part of the melody. Old cactus wrens' nests were plentiful, and the numerous holes in the dead stumps of trees showed that woodpeckers were not uncommon. After breakfast a number of photographs of the most prominent trees, some of which were thirty feet high and nearly two feet in diameter, were taken.

Mr. Palmer, one of the naturalists of the party, had been ill ever since leaving Daggett, and it was decided that he had better return. Accordingly he and Mr. Thomas, a packer, were to go back, the latter to return as soon as he had seen Mr. Palmer safely in town.

By 7 o'clock the rest of us were ready to start. As we descended the long slope the trees again became scarce and at an altitude of about three thousand feet disappeared entirely, as did the flowers, while the different species of cactus seemed rather more plentiful than higher up. At the end of about twelve miles the slope terminated in the

basin of a lake, now almost dry, but still containing a little water at the farther end. With the aid of field-glasses numbers of water birds could be seen about the shores, but on account of the distance the species were not determinable.

On the farther side of the lake the ground again slopes upward gradually for about ten miles. This tract of land, if the subsoil brought up by the gophers is any criterion, must be exceedingly rich, and if water were put upon it should make a garden spot.

The next three miles were much steeper and the sand was heavy, but we pushed on hopefully, for at the summit was a well, formerly a watering-place for the borax teams. The pretentious name, Copper City, is owing in part to the malachite strewn around, in part to the ruins of an old stone house beside the well. It was still early in the afternoon, so after having given the horses a good drink we pushed on to Granite Wells, six miles farther, on the way passing an old tumble-down house with a much dilapidated wagon before the door.

About sundown we halted and immediately began searching for the true well, the water in the excavation near the road being unfit to drink. Good water was found about a quarter of a mile from the road, near a large tank which had formerly been used to supply the borax teams. While standing beside the road, awaiting the return of the man sent in search of water, the leaders of our four-mule team became restless, and before the driver could reach them had turned completely around, twisting the left fore-wheel of the wagon underneath the body and crushing it to splinters.

It was now too dark to do anything, so the broken wagon was unloaded and the goods piled up beside the road. It was not a very encouraging spectacle, and I for one spent a good part of the night worrying about the morrow. About 1 o'clock Mr. Thomas rode into camp, having been guided to us by the light of the fire. He had accompanied Mr.

Palmer to Evans' Wells and then returned to us, having ridden fifty-eight miles since the morning.

Long before sunrise we were up, and it was decided that two of us should return to the old house passed the evening before and find whether the abandoned wagon was fit to use. This was done and, fortunately for us, though nothing too strong it was found to be in a measure suitable to our wants. The load was transferred to it and we again moved on, leaving our broken wagon beside the road.

About noon we again reached the lowland, passing on the way some of the most gorgeously colored cliffs I have ever seen. Tall and barren, yet rich in all shades of red and yellow, they stood out against the sky like immense obstructions barring our way from farther advance and shrouding in mystery all that lay beyond. High above us the ravens circled noiselessly, yet always keeping with us, like guides to the Valley of Death. Towards sundown we reached Lone Willow Spring, the last watering place before entering Death Valley. The spring is situated about half a mile from the road on the hillside and may be distinguished by a single willow, the only one in this part of the country, which grows beside it.

Soon after our arrival at the spring a strong breeze from the southwest sprung up and by midnight was blowing a regular hurricane with the cold rain beating down in torrents. In the dark I had unknowingly selected a spot a little lower than the surrounding ground to make my bed and long before morning an icy stream of water was running through the inside of my blankets, drenching everything I had on. To add to this, the mules were continually gnawing in two their halter ropes and breaking away. We finally got them settled by putting on their nose-bags and leaving them on during the rest of the night.

By morning, however, the clouds had all blown over and the sun shone out cheerily. We replenished our stock of

water and started for Windy Gap, six miles distant, which may be called the gateway to Death Valley. Near the gap we passed the grave of some poor fellow who had probably died of thirst while in quest of the riches which so many of the surrounding hills contain. Perhaps, having found a ledge, he was on his way home with the results of his labors, and becoming crazed with thirst died here, when within but a few miles of water. The grave is marked by a little mound, a rough piece of pine board being stuck on one end, and on it in pencil is written the name of the dead and beneath the finders' name and the date. It may have been years after death that the shriveled body was found by the passing traveler and covered over with a few shovel-fuls of sand or again it may have been found almost before the last spark of life had died out.

After ascending a steep grade the road passes through the gap and then begins a long and graded descent, which does not terminate until Death Valley itself is reached. Care must be taken at the foot of the grade to turn to the right, as the other road leads up to Panamint Valley.

The long slope is called Long Valley and is generally considered as an arm of Death Valley. Several miles below the gap is a little board shanty, evidently a hay house for the borax teams.

It is nearly thirty miles from the gap that the valley narrows down to a precipitous cañon, bounded on both sides by high, gorgeously colored cliffs, red, yellow and green, hollowed out by water and fantastically carved by rain and cloud-bursts. Now and then through gaps in the cliffs we could see, far in the distance, the top of a mighty mountain, which we afterward found was on the other side of Death Valley itself.

In the lower parts of the cañon are the best examples of successive sedimentary deposits that I have ever seen. Layer above layer of assorted sand, gravel and bowlders

may be seen, reaching in places a depth of twenty feet, while directly through the middle is a deep cut, probably the result of a cloud-burst, through which the road runs.

Suddenly the cañon broadens out, and just as it becomes too dark to see anything at a great distance we emerge from the gorge into Death Valley.

Only the tops of the distant Panamints were seen, slightly tinged with the last rays of the setting sun. Almost at the top of the highest point a bright light was burning, proceeding as we conjectured from a fire in the mountains, but later we found that it was the camp-fire of a section of our own party, which, having started some months previous, had been in the valley for some time and was now camped nearly ten thousand feet above us on Telescope Peak.

We were all up early next morning to get our first glimpse of Death Valley. As the sun rose higher and higher the view extended farther and farther to the north, until it seemed swallowed up in a vapory mist. As far as the eye could reach lay the burning sands, much like the rest of the desert, but far whiter and more dazzling. Everything seemed burned and white. Even the plants had a more ashen hue. The evergreen *Larrea*, the only rest to our eyes during the past three days, was absent. Through the center of the valley extended a long, intensely white line, which we knew was the salt left by years of evaporation in this giant sink.

Directly in front of us, and across the valley, loomed up the Funeral Mountains, impressive in their nakedness. Scarce a shrub was to be seen upon their barren slopes. Far to the left extended the mighty Panamints, of whose tops we had caught a glimpse the night before, and on whose side had burned the distant camp-fire of our friends. But what a change! The then dark and gloomy slopes were now lighted up by the rays of the rising sun, while the dark line indicating where timber begins was scarcely visible, for

during the night a heavy snow had fallen and now the top of the entire range was covered with a white mantle.

As soon as possible we moved out of camp, for we wished to travel as far as practicable before the heat became uncomfortable. Before long we passed another grave, this time evidently that of a Chinaman, for a pair of Chinese slippers surmounted the mound. Near by was a deep hole dug by the borax company in search of water, but that found was so salty that no one could touch it. From here on the sand was very deep and the horses could scarcely struggle along, having to rest every few yards. Clumps of mesquite appeared here and there, but all looked dry and parched. Each one seemed raised up on a little sand dune which had gathered about it. The heat was becoming more oppressive as the day wore slowly on. Our stock of water was nearly gone and we did not know how far we were from the next well. At last, far in the distance, we saw a beautiful little lake, surrounded on all sides by green grass and bordered by cottonwoods. Those of us who had never been through the valley began to think it not such a terrible place after all. Every one was light hearted and even the poor, worn out, thirsty animals seemed to gain more strength at the sight and tug a little harder at the heavy load. For half an hour we almost counted the steps that were taking us nearer to this paradise as it seemed. I began to wonder how far we were from it and why in this climate distance was so deceptive to the eye. Suddenly the lake and trees grow fainter, and seem even farther away than before. Fainter and more distant still it became, as though eluding us, and finally vanished entirely. Only a mirage.

I wonder how many a poor fellow has struggled onward toward this haven, which is nothing but sand. The eight graves along the last hundred miles of road seem to rise up and shout the answer. But how many bodies are there which have never been found—the remains of poor fellows

who have become delirious from the burning thirst and wandered off from the beaten road to die? How many wives and sweethearts are there who waited many long weeks for their loved ones to return and finally gave them up for lost? I fear we never shall know.

After eleven more miles of heavy pulling we reached Mesquite Wells, a large, rectangular hole filled with salty and sulphury water, far from good, but nevertheless eagerly swallowed by the thirsty horses. After a hasty lunch we again started and in the following four hours traveled only six miles, which fortunately brought us to Bennett's Wells, where the water was much better than at the last stopping-place.

Here we met a part of our party who had been sent down from the mountains to meet us and it was from them that we learned that the fire seen on the previous evening was lit by some of their men who were still on the heights. These were the first human beings we had seen since leaving Evans' Wells. There was considerable rank bunch grass about here, which was eagerly eaten by the animals, who were only too glad to get anything green to eat.

This is the lowest camping-place in the valley. It has been estimated to be about a hundred feet below the sea level; the very lowest point of the valley, and in fact the lowest in the country, is only about a mile distant. Here the altitude was considered as one hundred and fifty feet below, but I believe the latest survey has made it about five hundred feet lower than the sea.

In strong contrast is Telescope Peak, towering above us to a height of more than ten thousand feet.

The well from which the place gets its name is a hole dug by the roadside about six feet deep and boarded up on all sides. The water itself is only two feet deep.

While wandering around, a little to the west of the well, I came upon what was once an old Indian camping-ground.

The earth was literally strewn with flint, obsidian and quartz chips of all shades and colors, one or two unfinished and broken arrow points being found.

This is the worst place for scorpions that I have ever seen. I would advise the camper stopping here to shake his blankets well before going to bed, for although the sting of a scorpion is not necessarily fatal, it is nevertheless far from pleasant.

The weather thus far had not been excessively warm, though on the day of our arrival at Bennett's Wells it must have registered 100°. In all probability, two months later 130° would not have been the maximum.

The next morning we started for Furnace Creek, twenty-five miles to the north, but could travel but slowly, the first few miles being through exceedingly deep sand. A short distance from the well we passed a water hole, encircled with immense tules, while half a mile to the right were seen the deserted buildings of the Eagle Borax Works.

As we approached the middle of the valley, for the road takes a sudden turn to the right, traveling became easier, owing to the great quantities of salt and alkali, which have moistened and packed the earth. Soon, however, we saw that all was not smooth ahead. First appeared a long, white line of alkali, then the ground became more and more rough, until finally we were in the midst of the most curious phenomenon I have ever seen. On all sides the soil seems to have been churned up, twisted, contorted and squeezed into the most fantastic shapes. It looked as though there had been a "choppy sea," which had suddenly turned to mud of such a consistency as to keep its shape. All through were tiny caverns and crevices, glittering with minute salt crystals, while beneath all, and indeed in some of the larger holes, was a slimy, doughy kind of mud. It is almost impossible to imagine the first impressions of the beholder and it seems more wonderful

still when we realize that it is due entirely to the working and effervescing of the immense quantities of salt and alkali which impregnate the earth. Straight through the center of this "self-rising ground," as it has been called, runs the road, literally beaten down until hard and solid enough to bear a load. It is said that the breaking down and mashing of the irregularities was done entirely with sledge hammers. How true this statement is I do not know, but I do know that if such were the case it must have been an almost endless piece of work, for it is in but few places that the treacherous crust will support the weight of a man and keep him from sinking into the slimy depths.

Directly through the middle of this interesting stretch of soil, through which the road runs, is a little stream or gathering-place of water. Here the process of the crystalization of salt may be watched as well as along any seashore. The bottom of the stream is of pure white salt, reflecting all the colors of the rainbow, while on the surface of the water is a film of the same substance in process of formation, beginning at the shore and extending toward the center, every object in the water being coated with beautiful salt crystals. I took my knife and from the bottom of the stream dug out a solid lump of salt the size of my fist and as white as any which ever came upon a table.

After the road has crossed this great salt bed it turns to the left and runs along the right side of the valley. About a mile beyond the crossing is a very curious block of lava rock, twisted in shape so as almost to resemble a giant anvil, being fully six feet high.

About 5 o'clock we sighted Furnace Creek, four miles ahead, and a more welcome sight never presented itself. This time our joy was not in vain, for we all knew it was not a mirage deceiving us again. The long rows of cottonwood trees looked greener and more beautiful than ever trees had appeared to us, and as we drove across the little

brook, shaded by fig trees, for the first time since leaving Daggett I felt every care and worry thrown off.

Greenland Ranch, as it is sometimes called, though generally known as Furnace Creek, is a little patch of cultivated ground, perhaps forty acres in all, watered by Furnace Creek, which flows down from the Funeral Mountains and a little further beyond loses itself in the great sink of Death Valley. The place is kept by one Jimmy Dayton, a curious specimen of what have been called the white Arabs of the American Desert.

Mr. Dayton is employed by the borax company to act as watchman at their abandoned borax works, about two miles north of Furnace Creek. Though he must already be fifty years of age, he lives here alone and contented, even discouraging the stopping at his place of any travelers who may chance that way. He has quite a good-sized patch of alfalfa, some fig and cottonwood trees and thus walled in during the greater part of the year by what is, so far as known, the hottest desert on earth he lives apparently happy, seldom seeing a human being except when he goes to town, a hundred and fifty miles away, for provisions or when visited by some wandering prospector or by one of the few remaining Panamint Indians who remain to tell the tale of a fast-disappearing tribe. When questioned as to the temperature at Furnace Creek Mr. Dayton said that last year the thermometer reached 134° in the shade. Later in the season some Signal Service men were stationed at the old borax works north of here and reported the warmest weather as 122° . During the month of July their report gives the *average maximum* temperature as 116° and the *average minimum* as 102.1° . This, then, proves the locality to be the warmest at which systematic readings have been taken, even surpassing the famous Oasis of Gardaia in the Sahara.

The next day the party divided, some going up the terrible Mesquite Valley—the worst portion of Death Valley—others proceeded to Panamint by way of Johnson's Cañon, while I was destined to retrace my steps as far as Lone Willow and from there go to Hot Springs, forty miles farther, but I venture to say that none of the party will ever forget our last night's rest, on an immense pile of alfalfa hay, in the heart of Death Valley.



THE UPPER SACRAMENTO IN OCTOBER.

BY J. K. McLEAN.

On the 11th of June I had said, "This is the supreme day for Mount Shasta and the upper Sacramento. It never was so beautiful before and never will be again." On the 25th of the following October I was fully convinced of my mistake. And am now ready to aver that he who has seen the upper Sacramento only in June—magnificent as that sight is—knows little of its true glory. That compares to this only as green baize to cloth of gold.

I wish to make another correction, accompanied by an humble apology to my adoptive State. I have been accustomed to admit that all months in California must give precedence to two in New England and New York—those of June and October. I now solemnly, and with acknowledgement of wrong in having made such admission, withdraw the concession. Especially as concerns October in the northern part of our State. I am firmly convinced that the days beginning the 17th of October, and continuing to the 27th, were unparalleled by any Eastern October; and I am in a state of mind to add, by anything this side of immortal glory. No more deliciously or magnificently perfect examples of weather or of landscape could be contrived.

As usual with all best glory, this was born in pain. October 14th to 16th was frosty, snappish, chill and gloomy. Visitors had reason to say—and made no scruple in saying it—"This is not what we came for. October has aborted for this year. This is grim November. Worse than the worst we have about the Bay." Saturday night, the 15th,

this untoward condition culminated in a pouring, roaring rain. Nothing could keep up the temperature. Great wood fires, roaring up wide-throated chimneys, made no impression on it; they only drew in drafts of cold air and made those sitting before them the colder by their drawing. The lower hill-tops were white on Sunday morning. On the higher elevation pines, firs, cedars, all slanted their heavy branches to the earth. It was a picture of Norway winter. Grim Shasta refused to disclose himself at all. Apparently, the donning of his new suit he did not judge a transaction for the public eye.

But on Monday morning! Sky clear, low mountains steaming, higher ones gleaming, and the great monarch resplendent in a suit of fleckless ermine, which covered his very feet. And such a golden hue to the air; such a clean-washed sky; such shining oak leaves and such glittering pine needles. And such faint hints and touches here and there of autumnal color. And withal, what fishing. Such fishing so envired! Paradise? Well, Paradise will have to start in early in the morning, and work late at night, to beat it.

And the growing wonder of it all is that each succeeding day was like its predecessor, only more abundant. The golden cast in the air deepened day by day, the halcyon tones grew subtler and more spiritual, and the colors upon the mountain sides and along the river much more vivid. A marvelous garment of green and gold, green and terra cotta, green and crimson, woven in the loom of ten luscious days was flung over the labyrinthined mountains in a perfect prodigality of splendor. I wish I could place all California—unequipped however with rod and tackle—along certain bends of the Sacramento which I was privileged to haunt from sun to sun all through those

wondrous days. There are points where the mountain rises sheer out of the emerald stream to the height of hundreds of feet, and at an angle of forty-five degrees. These rises are somewhat thinly clad with loose growths of pine and cedar, leaving abundant openings, which dogwood, maple, oak and laburnum occupy. The steep face north-westward. The sun seems to only just roll along their summit, but scarcely peeps over. Some days its shine did not find me till high noon.

Now just look. First of all the green, clear, rattling river. Growing out of its brink are the great umbrella-shaped, umbrella-sized saxifrage leaves, which, green in summer, are now gorgeous in all the colors of the rainbow. Next beyond these azalea bushes, that last June illumined the place with their pinkish, yellowish-white blossoms, and now irradiate it with their crimson leaves. Above them stands the dogwood of a deep, rich terra cotta. And higher yet—the crown and glory of it all—the large-leaved, soft maple, rising in broad blotches all the way to the mountain top. These show as great masses of pure gold, the goldenest sort of gold. And the dusky twilight of the overhanging, various-shaded green makes splendid contrast and background for it all.

This is beautiful all the day through, even before the sun has slanted his first beams up toward the ice-cap of Shasta. But as the morning goes on and the air grows warmer, and the light behind this grand decoration stronger—although the trout meanwhile are rising vigorously—why, one has fairly, now and then, to even stop his fishing and give himself up absolutely to admiration. Fishermen will understand how much is said in saying this, especially when I add that the trout landed in such surroundings by the hand which pencils this weighed, many of them, three-quarters

of a pound apiece, a dozen at least a full pound each, one two pounds, and another a full two pounds and a half. To knock off fishing in favor of scenery at such a time stands for much.

But, increasingly beautiful is the scene as the day goes on, for the climacteric of the grand display is not reached until when at length, near noon, the sun finally does glance over the apex of the ridge, and floods the entire amphitheater of the hillside. There's an illumination indescribable, unsurpassable! Each one of those brilliant masses of foliage is transfused with splendor. The fine gold of an hour ago is burnished now. The crimsons, terra cottas, and all the reds take on strengthened tints. It is a grand illumination without the jostle, a colossal pyrotechnic without smell or smoke. It is the coronation of the year.

But I must not forget, amid all this splendor, my dusky little fisherman friend, the water ouzel—that wee, sweet philosopher, poet and musician, the making of whose acquaintance were in itself a sufficient justification for a five-hundred mile trip to the mountains. Although in himself an inconspicuous personage enough, he adds, in my mind, by his enjoyment of it, even to all this radiance of glory. He apparently takes it all as meant for him. It is his vacation time. All summer long he has been rearing children. He no more than gets one brood off his hands than he takes on another. And a very devoted parent is he. I have for an hour watched a busy pair carrying food to their nestlings beside some pool where I have been fishing. Their visits, never empty-billed, averaged at least one each two minutes. But now all domestic cares are off his mind. His children are all grown up, and he is giving himself well-earned leisure. All day long he flits up and down the spraying stream, delighting most to rest on some rock-tip where the

water runs swiftest. And very sociable he is, particularly toward other fisher folks. He really seems to court their company. : I have often had one this season, as well as at other times in autumn, pause in his rapid flight up or down the stream, turn about and light on rock or stone quite near me, evidently in part curious to see what is going on, in part conscious of kinship with all anglers. For this little bird, about the size of a robin, though not properly a water-bird at all, lives always by the water, and gets his living out of it. And—though not in summer—in these days he is singing. He has a song much like that of a canary, quite as varied and mellow, and as full of runs and trills, but much weaker. He reminds one of a weak-throated, low-voiced canary. By the quarter-hour will he sit and pipe, and trill and turn his head and curtsy. He is quite tame, too. I have been allowed to come within fifteen or twenty feet of him without at all disturbing the current of his song. He is a delightful little fellow to all observers, but I have an idea he thoroughly unbosoms himself only to fishers. He recognizes the craftship not only, but knows that people of such tastes and calling can be thoroughly confided in. But even fishermen see this bird at his best only in October.

Perhaps I have said enough to shake the good opinion of my friends in my vacation soberness. But there still remains the October afternoon on Mount Shasta. An appearance wholly apart from anything I have ever beheld there at any other season. Perhaps because of the unusual amount of new-fallen snow, perhaps because the tavern of Castle Crags stands at the proper angle from the setting sun and the mountain to catch the light to best advantage. I am, however, disposed to think it is the peculiar quality of this October light—its rich golden hue. At all events—not every night, but often at sunset—the helmet of the great mountain glows and gleams with a depth and richness of

coloring quite equal, it seems to me, to that of the Jungfrau.

In a word, many things, great and small—the absence of dust, heat, insects (even that audacious freebooter, the yellow-jacket—the Evans and Sontag of the woods, who robs you boldly before your very face, then lingers in the neighborhood, defying arrest and refusing to go away, while he plans how to rob you more—seems to have suspended business for the season), the absence of smoke from forest fires, and, may one add, the infrequency of the summer tourist—all these things, together with the positive beauty and healthfulness of the frosty mornings, combine to make the upper Sacramento in October as much superior to the same region in summer as the upper Sacramento in summer is superior to the lower Sacramento at any time.



